

# WHAT IS CLAIMED IS:

1. A spread spectrum communication device in a direct sequence spread communication device using a pseudo noise code inverted in polarity so as to correspond to digital information, said spread spectrum communication device comprising:

a pseudo noise code generator for generating, as said pseudo noise code, a code sequence having a code length of at least 14 and having a value corresponding to a peak of one of plural absolute auto-correlation side lobes having the smallest value, which is calculated such that in a synchronous detection system, a signal code sequence  $S_k$  corresponds to 1 and 0 of an information signal and is represented by the following equation:

$$S_k = \left[ \frac{m_{\text{mod}(k/n)} (\text{data} = 1 \text{ or } 0)}{-m_{\text{mod}(k/n)} (\text{data} = 0 \text{ or } 1)} \right]$$

(Expression 1)

wherein  $m_j$  ( $j=1, 2, \dots, n$ ;  $n=\text{code length}$ ) corresponds to one of the pseudo noise codes  $b_j$  shown in TABLES 1 through 9 of the specification, and is represented by the following equation:

$$m_j = \left[ \frac{1(b_j = 1)}{-1(b_j = 0)} \right]$$

(Expression 2)

wherein in a delay detection system, the signal code sequence  $S_k$  is

represented by the following equation:

$$S_k = \frac{\begin{bmatrix} m_{\text{mod}(k/n)} S_{k-1} (\text{data} = 1 \text{ or } 0) \\ - m_{\text{mod}(d/n)} S_{k-1} (\text{data} = 0 \text{ or } 1) \end{bmatrix}}{\quad}$$

(Expression 3)

wherein a reference code of a receiving side is denoted by  $M_j$ , and a correlation coefficient  $O_k$  is represented by the following equation:

$$O_k = \sum_{j=1}^n S_{k+j-1} M_j$$

(Expression 4)

in a case where  $M_j = m_j$ , and the correlation coefficient  $O_k$  represents an auto-correlation coefficient which is represented by the following equation:

$$O_k = \sum_{j=1}^n S_{k+j-1} m_j$$

(Expression 5)

wherein sub-peaks other than correlation peaks ( $\text{mod}(k/n) \neq 1$ ) are referred to as side lobes; and

means for applying said code sequence so as to demodulate the information signal,  
wherein said value of said peak of the one of the absolute auto-correlation side lobes having the smallest value refers to the highest point of said one of the absolute auto-correlation side lobes.